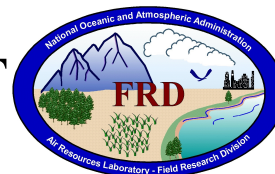


FRD ACTIVITIES REPORT

July 2006



Research Programs

UrbaNet/Urban Dispersion Program

Preliminary analysis of plume spread during the New York City MID05 experiment suggests that the plumes initially spread very rapidly and then only very slowly after that. It is conjectured that this feature is due to flow blockage by buildings resulting in a large crosswind spread and then street canyon channeling in the along-wind direction. The real-time TGA data exhibits sharp peak-to-mean excursions and periodicity reminiscent of that observed in the Joint Urban 2003 data. (Dennis Finn, 208-526-0566)

Smart Balloon

The battery packs and solar panels have been completed and tested for the upcoming Texas Air Quality Study II (TexAQs II). Testing on the transponders and communications is finished and packing of equipment has started. Departure for Houston will be in late August with the first launch date expected on the 29 August. The study is expected to continue through mid-September. (Randy Johnson, 208-526-2129)

ET Probe

Reviewer comments have been received for the ET probe manuscript submitted to the *Journal of Atmospheric and Oceanic Technology*. Many of the comments are quite good and have led to significant improvements in the manuscript. The revised manuscript is due back with the editor in mid August. (Richard Eckman, 208-526-2740)

As noted last month, the ET probe has been included as part of a draft NOAA-NIST partnership on hazard resilient communities. NOAA requested some additional material on the ET probes for use in the NOAA-NIST planning. A couple of items were extracted from the material presented at the April AMS Hurricane Conference and sent forward to NOAA. (Richard Eckman, 208-526-2740)

Joint Urban 2003

An initial draft of the manuscript "Analysis of Plume Dispersion, Decay, and Peak-to-Mean Excursions for Continuous Tracer Gas Releases in an Urban Core, Oklahoma City, JU2003" was completed and is now undergoing internal review within FRD prior to submission to a journal. (Dennis Finn, 208-526-0566)

Atmospheric Tracer Chemical Analysis Upgrade

The final method is being developed to do PFT tracer analyses. The injection valve was checked and found to have a severe leak. A new valve was put into the instrument and the column was attached directly to the 10-port valve by removing several inches of unneeded tubing. This reduction in dead volume should help increase the sharpness of the peaks and improve the reliability of the data analysis. (Debbie Lacroix, 208-526-9997)

Cooperative Research with DOE NE-ID (Idaho National Laboratory)

Emergency Operations Center (EOC)

The last requalification drill of the year was conducted at the EOC on the 25 July. The drill centered on an explosion and fire inside a building at Idaho Nuclear Technology and Engineering Center. The NOAA team provided meteorological support, operated the NOAA MDIFF transport and dispersion model, and interpreted its output for emergency response personnel. (Jason Rich, 208-526-9513, Brad Reese, and Dennis Finn)

Mesoscale Modeling

During July some initial testing of the Weather Research and Forecasting (WRF) mesoscale model was performed at FRD. A two-domain configuration similar to the existing MM5 system at FRD was designed. The coarse domain uses a 20 km horizontal grid spacing and covers Idaho together with parts of the surrounding states. A 4 km nested grid covers the Eastern Snake River Plain and nearby mountains. Currently, WRF is being initialized using the Rapid Update Cycle (RUC).

WRF is easier to configure than MM5 because it includes a graphical user interface for setting up the domains. One problem that came up is that WRF currently doesn't fully support the newer GRIB 2 format. The RUC files are quite large, but the GRIB 2 files are only half the size of the older GRIB 1 files. Since ftp downloads can take considerable time, the GRIB 2 files are being downloaded and then locally converted back to GRIB 1 format for use in WRF. The initial test runs of WRF were somewhat disappointing, in that WRF seems to be running at about the same speed as MM5 even though the WRF computer is much faster. This might be partly due to the WRF configuration using more complex parameterizations for air-surface interactions and cloud microphysics. Still, it appears that WRF is not yet as well optimized as MM5. (Richard Eckman, 208-526-2740)

Other Activities

Safety

An unannounced fire drill was conducted prior to the monthly staff meeting. The drill response was discussed later at the staff meeting. (Debbie Lacroix, 208-526-9997)